

### AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions. Only those claims being amended herein show their changes in highlighted form, where insertions appear as underlined text (e.g., insertions) while deletions appear as strikethrough text (e.g., ~~deletions~~).

1.-30. (Canceled)

31. (Currently Amended) In a signal processor for processing at least two measured signals  $M_1$  and  $M_2$ , where said signal  $M_1$  comprises ~~a combination of a~~ physiological signal portion  $S_1$  and may comprise a signal noise portion  $N_1$ , and where said signal  $M_2$  comprises ~~a combination of a~~ physiological signal portion  $S_2$  and may comprise a signal noise portion  $N_2$ , ~~where  $S_1$  is approximately proportional to  $S_2$  and where  $N_1$  is approximately proportional to  $N_2$ ,~~ a method comprising:

determining a value for a coefficient  $c$  used in a combination of  $M_1$  and  $M_2$  such that the combination of  $M_1$  and  $M_2$  approximates  $S_1$ , such that an error value  $e$ , given by the relation  $e = S_1 - (cM_1 - M_2)$  is at least partially reduced, wherein determining the coefficient  $c$  comprises comparing frequency domain representations of the two measured signals  $M_1$  and  $M_2$ ; and

using said coefficient  $c$  to remove at least some of the signal noise portion  $N_1$  from the measured signal  $M_1$ , and thereby producing an approximation  $A_1$  to said physiological signal  $S_1$ , ~~where  $A_1 = cM_1 - M_2$ ;~~ and determining a measured output value for one or more physiological parameters based at least in part on said approximation  $A_1$ .

32. (Currently Amended) The method of Claim 31, where  $A_1$ ,  $M_1$  and  $M_2$  are comprise frequency domain signals.

33. (Currently Amended) The method of Claim 31, further comprising displaying ~~the resulting clean signal~~  $A_1$  on a display.

34. (Currently Amended) The method of Claim 31, ~~wherein said first and second signals are physiological signals,~~ further comprising ~~the step of processing said clean signal~~  $A_1$  to determine a physiological parameter from  $M_1$  and  $M_2$  ~~said first and second measured signals.~~

35. (Currently Amended) The method of Claim 34, wherein said physiological parameter is comprises arterial oxygen saturation.

36. (Canceled)

37. (Currently Amended) The method of Claim 32, wherein ~~the first portion of said measured signals~~  $S_1$  is indicative of a heart plethysmograph, further comprising ~~the step of calculating the~~ a pulse rate of the heart.

38. (New) The method of Claim 31, further comprising determining, based upon the comparison of  $M_1$  and  $M_2$ , whether  $M_1$  comprises  $N_1$ .

39. (New) The method of Claim 38, further comprising disabling said usage of  $c$  to remove at least some of the noise portion  $N_1$  if  $M_1$  does not comprise  $N_1$ .

40. (New) The method of Claim 31, wherein the combination of  $M_1$  and  $M_2$  comprises a linear combination of  $M_1$  and  $M_2$ .

41. (New) The method of Claim 40, wherein the linear combination of  $M_1$  and  $M_2$  comprises  $cM_1 - M_2$  such that  $A_1 = cM_1 - M_2$ .

42. (New) The method of Claim 41, wherein an error value,  $e$ , given by the relation  $e = S_1 - (cM_1 - M_2)$  is reduced.

43. (New) The method of Claim 31, wherein comparing the two measured signals  $M_1$  and  $M_2$  comprises calculating ratios of values of a frequency domain representation of  $M_1$  to corresponding values of a frequency domain representation of  $M_2$ .

44. (New) The method of Claim 43, wherein said ratios are calculated using values that correspond to peaks in said frequency domain representations of  $M_1$  and  $M_2$ .

45. (New) The method of Claim 43, wherein determining whether  $M_1$  comprises  $N_1$  comprises determining whether the ratios have a predetermined degree of similarity.

46. (New) The method of Claim 31, comprising displaying the measured output value on a display.